

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
13 January 2005 (13.01.2005)

PCT

(10) International Publication Number
WO 2005/003557 A1

(51) International Patent Classification⁷: **F03H 1/00**

ADAMS, Thomas, Seton [US/US]; 10242 West Surrey Drive, Littleton, CO 80127 (US).

(21) International Application Number:
PCT/US2004/020226

(74) Agent: KNOPS, Peter, C.; Lathrop & Gage LC, 2345 Grand Boulevard, Suite 2400, Kansas City, MO 64108 (US).

(22) International Filing Date: 25 June 2004 (25.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/482,601 25 June 2003 (25.06.2003) US

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(71) Applicant (for all designated States except US): DESIGN NET ENGINEERING, LLC [US/US]; 605 Parfet Street, Suite 120, Lakewood, CO 80215 (US).

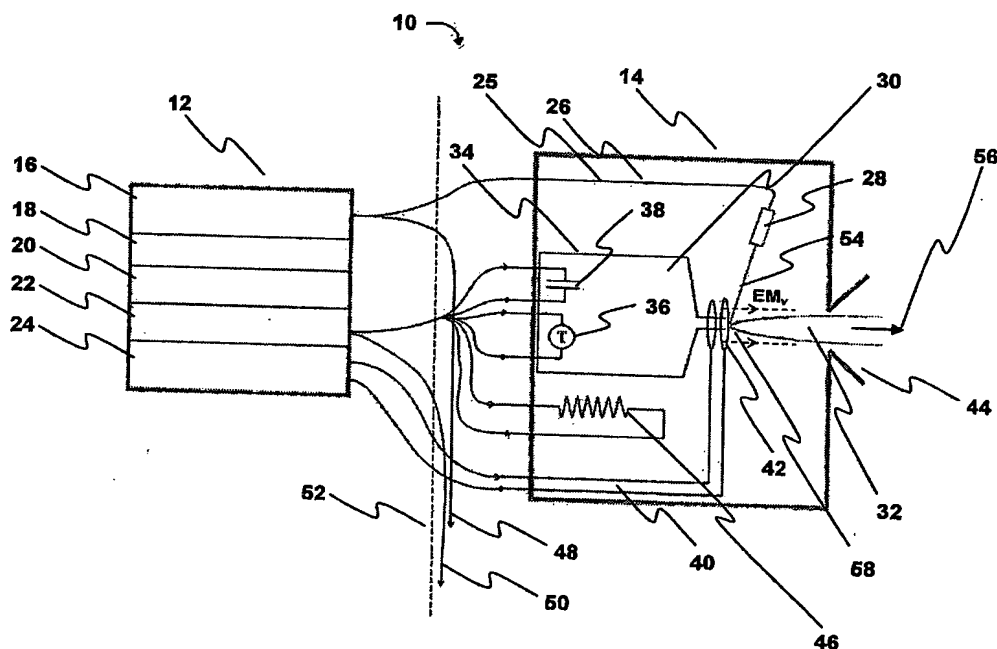
(72) Inventors; and

(75) Inventors/Applicants (for US only): LEACH, Rachel [US/US]; 8057 South Iris Way, Littleton, CO 80129 (US). MURPHY, Gerald, Bernard [US/US]; 1968 Mountain Maple Avenue, Highlands Ranch, CO 80129 (US).

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,

[Continued on next page]

(54) Title: LASER PROPULSION THRUSTER



(57) Abstract: A hybrid electric-laser propulsion (HELP) thruster. A propellant has self-regenerative surface morphology. A laser ablates the propellant to create an ionized exhaust plasma that is non-interfering with a trajectory path of expelled ions. An electromagnetic field generator generates an electromagnetic field that defines a thrust vector for the exhaust plasma. Multiple HELP thrusters may be ganged together, and controlled, according to mission criteria.

WO 2005/003557 A1



SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*